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## THE PSYCHOLOGICAL FOUNDATION OF NATURAL REALISM.

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By ALEXANDER FRASER, A. B.

The ordinary, common-sense man lives and thinks on the assumption of two fundamentally distinct and frequently conflicting worlds, the world of ideas and the world of things. The distinguishing characteristics of these two worlds are to him,—to put it in a word,—that the former may be and often is illusory, and that the latter must be and always is real, always the same permanent, unchangeable world. Throughout the greater part of his life the two coincide and present to him the appearance of only one, but occasionally there come critical moments at which they must part company and leave as a result of their conflict and separation a firm conviction of a real dualism ; the world falls apart into two general classes, of which one must be real and the other may not. It is at such periods in the uncritical common-sense life, that it is easiest to observe the primordial germ of dualism, and the special psychological foundation of that belief in a real external world which is the presupposition of all practical life and the guiding-star of all realistic systems of philosophy. In the case of the unreflective but practical thinker, the question, what do you mean by a real world ? is answered openly and without bias. The most general statement of his answer is : It is a world that we can *touch*. What is necessary according to him, in order to constitute the essential features of a real world, is that it be in some way or other *tangible*. What he means by the reality of an object seen in the distance is the belief that if he were beside it he could touch it ; if upon approaching it he found that he could not feel anything, he would say that it was not real but illusory. What he means by an illusion, ghost or phantom, is, in an ultimate analysis, something which is in its very nature intangible. He can be persuaded that the object he *sees* before him is illusory ; but if he is allowed to stretch forth his hand and can touch it and feel it there, the last remnant of doubt as to its real existence will have fled. Or conversely,

he can be persuaded that the ghost or phantom which he sees is really there, but if he puts out his hand and feels it not, then he is firmly convinced of the illusion. Practical life is full of illustrations of this truth, and I think that without making any further explanation, we can safely carry with us for future use the general conclusion that the final and most conclusive test of reality for the common-sense man is "touch."

But this truth can be seen in a much deeper and more critical sense. Let the common-sense man begin to philosophize. Let him become acquainted with Berkeley's theory of matter. He is told that this real world of his in which he has had all faith ever since his life began, is a monstrous illusion; that there is only one world and that that is not what he used to call his real world but his ideal world; that he is to be deprived of not one of his old facts, but that all these facts are of the same type and this type is the type of his ideal world. He is at once fascinated by the novelty of the doctrine. At first he will have an irresistible objection to it on the ground of his old appeal to reality—he will invariably reply, there is more than the *idea* of the world there, for I can *touch* it. But he is asked to *reflect*, to look within and to say what he really means by "touching an object," he is asked to describe, to give a definite expression to the content of consciousness which corresponds to this fact of touching; once more he begins to see the truth of idealism, and his stubborn realistic notions begin to fade and grow dim. He finds that all he means by "touching an object" is the *idea* that his hand (another idea) stands in a certain relation to an object, which is itself only an idea. Everything he attempts to describe or express must first be translated into this language of idealism. It is all very well for men to live uncritically and to *believe* in an external material world; it is all very well to say that we can touch it, but the true and ultimate test now is not "touch" but "expression." Describe the content of your consciousness. Try to express what you mean by matter, try to define it, and you will find it immediately dissolving into ideas. The whole belief in a material world has arisen from want of reflection, from want of the proper method for observing the truth of things. The way to get at the truth of things is not to believe what *is* here but to wait until the next moment and then look back and see what *was* there. At the moment when we touch an object we have an immediate belief in its real existence apart from our knowledge about it, but we must not have any faith in this belief—we must find the real truth about the object by reflecting on this belief and by trying to give it a definite expression. The arguments of the idealist

are unanswerable, and thus the common-sense man becomes a convert.

But let this same man arise from his philosophic calm, and let him once more go out and assume the duties of practical life; at the first stone he kicks, away goes Berkeley's theory of matter; he is back in his real world again. Idealism is very fascinating and all very true for a state of perfect calm, in which all the *active* senses are relaxed, but once out in the busy scenes of active life, its charms are gone, and all its terms appear hollow-sounding and meaningless. Underlying practical life there is a vast stretch of realistic intelligence which refuses to be expressed by the reflective method. It has no content in the imagination and consequently defies definite description. It seems to have been left without a language and without a written history. But nevertheless it has perhaps the highest claim to the name of intelligence since it realizes itself in immediate belief and practical life. Its outcome is not reflection but *action*. The real world we cannot and must not try to know by reflection, but we can and do know it by acting and living in it. How eagerly and yet how vainly do we search the whole vocabulary of language for words to express this great practical truth! How we have to fall back, as did the Scottish philosophers, on such generalities as "common sense," "belief," "intuition," which can be so easily ridiculed by the glib-tongued idealist whose rich inheritance is almost the whole vocabulary of thought! And what relief we feel in the reflection that we *are*, and *do*, more than we can know! Life and its fundamental beliefs are greater than knowledge; and the most fundamental belief, and the belief which stimulates and moulds all life, all evolution, all progress, is that belief which the ordinary man has in the existence of a real external world. It must be remembered that in this we are not dealing with any speculative form of realism. What we have been looking at is the simple experience of the naïve thinker. Our common-sense man has gone through the experience of idealism, and now he is back in his real world again. It is the same old world that once before he told us he could *touch*. It was by again allowing full play to the sense of touch that it was brought back to him with even deeper conviction than before. If we ask him now what is his criterion of reality he will reply not "definition" but "touch." He knows, and will admit, that there is something simple and uncritical about it, but yet he feels like crushing once for all our critical methods by telling us that there are more things in "touch" than were ever dreamt of in our philosophy. Such confessions from the ordinary unreflective life are of greatest importance inasmuch as they

point out to us the history of the belief in an external world in its first stages, and in this indicate the fundamental basis of realism and the true method for its solution. And now that this fact has been pointed to, that realism at least in its first conscious forms, that at least the primary stages of a belief in external reality are most directly connected with, if not wholly founded upon, the sense of touch, we can go back still farther and read from the story of evolution how all this came about.

Now why is it that touch should be the organ of reality any more than any other sense? *A priori* there is no reason. The only way we can realize and appreciate the fact is by observing its history. Touch is the mother-sense. It is a result of the first division of labor in animal life. The division of the protoplasmic mass into endosarc and ectosarc, or tactual surface is the first sign that marks its individuality. The tactual surface is the primordial boundary line between the ego and non-ego. It is most closely allied with the vital functions. In many of the lower forms, such as the *Amœba*, the absorbing surface and the contact surface are co-extensive; the vital functions and the tactual functions are almost one—the hand, mouth and intestine, are one and the same organ. As differentiation goes on, the tactual surface makes its special duty more marked. It becomes more and more confined to the business of mediating between the inner life and the outer world. If an outer world is to have any relation to, if it is to communicate in any way with, if it is to have any meaning for the inner life and vital functions, it must do so by means of tactual impressions. All the other senses, as Spencer has pointed out, are only modifications of the sense of contact. In their rudimentary stages the space penetrating senses are nothing more than anticipatory forms of touch. Their primary office is to serve touch. If they are to have any meaning for the life of the organism their impressions must be translated into impressions of touch. In the most highly developed forms the primary use of these anticipatory senses seems to have been forgotten, and they are admired for what they are in themselves. In man, for example, the visual faculty instead of remaining exclusively in the service of touch as a special scout between the inner life and outer reality has also become connected with the business of imagination, speculation and hypothesis. But in so far as any of these senses give any intelligence of an essentially real world, they must serve in their primary capacity and translate their impressions into the original impressions of contact. The organism cannot be affected in any important, in any *real* way, except by actual contact. All intercommunications and

relations with an external world that are most closely connected with life are in their ultimate analysis relations of actual contact. Eating, breathing, locomotion, acquisition of food, struggles with and escape from enemies, all functions implied in the processes of life and evolution are functions which imply actual contact between the organism and its environment. Thus the sense of contact is that which is most closely allied with life on the inner side and with reality on the outers. It is the first and original *meaning* of reality. In the case of the other senses we may doubt and reason about the reality of the information received, but if we doubt the reality of contact we call in question the very standard by which we are enabled to doubt. And though in disease the sense of contact may deceive us and present to us illusions, yet the standard of sanity by which these phenomena are known to be illusions is the standard of contact.

Another fact which may be learned from the evolution of the sense of touch is the history of that *immediate belief* and *prompt reaction* which always accompanies it. In the case of the space-penetrating senses there is no absolute necessity for immediate belief in and prompt reaction to the information received. At the sight of the enemy in the distance it is not absolutely necessary that the animal should immediately take the proper measures for warding off the attack. It has plenty of time to stop and speculate as to whether it is a real enemy, admire its form, etc., and still have time left to make itself secure from danger. The anticipatory faculties are only the first warnings of approaching interests and may be and quite often are illusory and misleading. The characteristics of the reaction which follows must consequently be wavering, hesitation, delay, and speculation. But the case of contact is very different. By touch the final warning is given, and if it is not heeded and immediately reacted to, destruction or injury is sure to follow. There is no time for reflection, doubt, or speculation. It is the final signal and the animal which is not so constituted as to follow it with immediate belief in its reality and prompt reaction, will not survive in a real world. One of the fundamental conditions then, on which the sense of contact has survived as the special organ of a real external world, was that its outcome should consist in immediate belief and prompt reaction, and for this reason it is so to-day. At the beginning of the history of animal life, its sole function was to mediate directly between the inner life and the external world; this is its special function to-day in the latest stages of the history and in its most developed forms.

It may at first sight be thought childish to form all this real world of ours in all its fulness and vast complexity on

such a simple, crude and seemingly unconscious thing as the sense of touch. Touch, however, is far from being crude. The mother sense, if it has not kept ahead, has at least kept abreast in development with the others. The influence of the sense of contact can be traced in all the highest forms of intelligence. Herbert Spencer says that touch is "more than any other sense associated with the advance of intelligence." He finds from the facts of evolution that "a highly-elaborated tactual apparatus comes to be the uniform accompaniment of superior intelligence." In support of this he supplies facts from each great division of the animal kingdom. The *Cephalopoda*, the most sagacious of the *Mollusca*, are especially distinguished in structure in having several arms by which they can grasp an object on all sides at the same time that they apply it to the mouth. Again the crabs which stand at the head of the sub-kingdom *Articulata*, bring their claws and foot-jaws simultaneously to bear on things they are manipulating. The parrot, which of all birds is admitted to be the most intellectual, differs most from its kindred in the development of its tactual organs. No other bird approaches it in the complexity of the tactual actions it performs and the tactual impressions it receives. Among mammals the *Unguiculata* or those having limbs terminating in separate digits are more intelligent than the *Ungulata* or hoofed animals. The feline and canine tribes stand psychologically higher than cattle, horses, sheep and deer. In the case of any marks of sagacity among hoofed animals, as in the horse, the lack of sensitive extremities is partly compensated by highly sensitive and mobile lips. The most remarkable and most conclusive instance of this connection between the growth of intelligence and development of the tactual organs is seen in the elephant, which is markedly distinguished from allied tribes both by its proboscis and by its great sagacity. The association between intelligence and tactual powers is brought out more conspicuously in this case by the fact that both are exceptional. Among the *Primates* the same association of development of intelligence with that of tactual appendages is distinctly marked both in contrasts between them and inferior animals, and between the different genera of themselves. The prehensile and manipulatory powers of the lower kinds are as inferior as their mental powers. In the case of the human being, Mr. Spencer maintains not only "that the tangible attributes of things have been rendered completely cognizable by the complex and versatile adjustments of the human hands, and that the accompanying manipulative powers have made possible those populous societies in which alone a wide intelligence can be evolved" but that even "the most far-reaching

cognitions, and inferences the most remote from perception, have their roots in the definitely-combined impressions which the human hands can receive."

Again, it may be objected that the sense of contact as such is only a myth; that what we have been calling the mother-sense is only a name or hypothetical term introduced for the purpose of explaining the origin and differentiation of the other senses, and that there is no such thing as a definite and special sense of contact. The evidence from experimental psychology, as far as it has gone, goes to show that this objection is without good foundation. The sense of touch is perhaps of all senses the least explored, but the bulk of facts already obtained by experiment give evidence that apart from the variety of sensations generally grouped under the word "touch," *i. e.* the feelings of pain, exertion, fatigue, conæsthesia and muscle sense, there is a *special* sense of *contact*. Goldscheider by drawing a very fine point of metal over the skin discovered that at certain minute points a distinct and peculiar sensation of "pressure" was felt. This sensation, when the pressure is very light, is described as being lively and delicate and accompanied by the feeling of being tickled. When the pressure is increased, the character of the sensation changes and becomes as though a small, hard kernel were pressed upon the skin. Stimulation of the spaces between these spots does not produce the same characteristic sensation but rather a dull, indefinable, "contentless" sensation.<sup>1</sup> This special sense of pressure or of tactual hardness is incommensurable with any of the accompanying sensations. It cannot be explained by any possible combinations of any other senses such as the feeling of innervation, muscular resistance, etc., but it is in itself something unique and underived. Is it not the sense which alone gives us the essential nature of the primary qualities of matter? The feeling of muscular resistance has a meaning, but it is a very different meaning from that of resistance plus contact. Muscular resistance can never get beyond a muscular feeling—it can never mean hardness, solidity or those fundamental strata of matter which we call the primary qualities. Landry gives the case of a workman whose fingers and hands were insensible to all contact but in whom the sense of muscular activity was everywhere alert. His eyes were shut and a large object placed in his hand. He was quite aware of the muscular resistance but had not the slightest notion of an object, or that an object was in his hand; his only idea was

<sup>1</sup> GOLDSCHIEDER, *Neue Thatsachen über die Hautsinnesnerven*, Du Bois-Reymond's Archiv, 1885, Suppl.-Band, 76.

that he could not close his hand, and he was astonished at the fact. Such facts as these, then, obtained by experiment, tend to show that there is a special sense of contact which is distinct from, and incommensurable with, the other senses; that this sense is the special organ for cognizing the primary qualities of the material world; and that consequently the mother-sense is not a myth or hypothetical name, but a real specific sense.

Now that we have seen the historical foundation for the important part which the sense of touch plays in the practical knowledge of common sense, we can go still farther and trace its influence on the more technical forms of intelligence, science and philosophy. "All developed science," says Mr. Spencer, "dealing as it does with *measured* results, is lineally descended from that simplest kind of measurement achieved by placing side by side the bodies held in the hands. Our knowledge of the forces governing the Solar System is expressed in terms that are reducible, by an ultimate analysis, to equal units of linear extension, which were originally fixed by the direct apposition of natural objects. And the undeveloped sciences that have not yet passed the stage of qualitative prevision, depending for their advance, as they do, either on experiments requiring skillful manipulation or on observations implying dissection and other analogous procedures, could not have reached this stage in the absence of a highly developed manual dexterity." Science is not only mechanically dependent on the sense of touch but it is so in its very nature. The very world that science is striving to express is the world of contact. It never rests satisfied until it can define things in terms of the tangible. Contact is the presupposition of all scientific investigation. All psychological theories, for example, take for their starting point the conception of contact. The various empiricist theories of the development of the notion of space all begin with "contact." All theories concerning the processes involved in the functions of the various senses are attempts to reduce these processes to terms of contact. Sight is not explained by sight but by a hypothetical process instituted in order to allow actual contact between the retina and the object. In the same manner also are hearing and smell explained. Again all physical theories presuppose this same conception. All physical hypotheses about atoms, fluids, vibrations, etc., are just the outcome of this attempt to give expression to this fundamental and unnameable yearning after tactual terms. It is a mistake to say that the goal of science is the "continuum"—the paradoxical and inconceivable continuum. The continuum is really not a concep-

tion at all, it is merely a name applied to that feeling of vain and endless effort, that contradiction which we feel when we try to express or describe the conception of contact in visual terms. It is merely the term applied to the contradiction which arises from trying to exhaustively describe the original notion of contact by means of modifications of the notion of visible expanse. The various hypotheses of atoms, fluids, etc., are not true expressions of the notion of contact; they are really visual constructions of the imagination and are in their very nature incapable of defining it. They serve very well as arbitrary *signs* of this notion but when they are looked upon as anything more they are bound to lead to contradictions. But the important point to be observed is that the goal of the existence of such hypotheses, the one fundamental purpose for which they are constructed is to make contact possible. Thus the underlying presupposition of science is not the "continuum," but "tangibility." A tangible world is the kind of world it is striving to express. All things can be made clear, can be scientifically explained if they can be reduced to the type of the tangible.

In the sphere of philosophy the influence of the touch-world is not so apparent, and its importance is much less frequently asserted. It seems to be swamped, as was indicated before, by the character of the philosophic method. The tangible world cannot flourish on introspective and reflective soil. The introspective type of reflection which to such a great extent characterizes the current methods of philosophy, seems for the most part to be the visual type of knowledge, and stands just as incapable of describing the phenomena of touch as that of sound or any other sense. This visual type of knowledge recognizes the existence of the tangible world in the sense that it believes that there is a real world to express. But when it formulates a visual expression of this world, it begins to see that its visual lines have fallen in unpleasant places and present nothing more than a mass of abstractions and contradictions, such as the "continuum," "abstract substance," and all the other bug-bears of philosophy. This mass of absurdities it surely must discard; and mark just here how scepticism follows. Instead of calling in question its method of expression and seeing its inadequacy, it regards this so called "mass of absurdities" as a true expression of the real world, and consequently resorts to the conclusion that there is no real world at all—the real world having become identified with this chaotic expression is rejected with it. This method of philosophy is the foundation of the Berkeleyan type of idealism and the scepticism of Hume. The material world

to which Berkeley meant to deny existence was not the world of touch but the chaotic offspring of the visual expression of that world, and in this he took a very important step towards clearing away the "philosophic dust;" but immediately afterwards he took a seriously false step in attributing the fault in this inadequate expression to the side of the touch-world rather than to the method of expression. In consequence of this he led the way to the denial that there was any real world to express, and this false step is carried out and fully developed with all its implications in the sceptical philosophy of Hume.

The thoroughgoing criticism of Hume marks the period for the beginning of a new system of philosophy. Hume boldly encountered the great paradox involved in the attempt to express the real world by the reflective method, accepted it as unavoidable, and denied the possibility of metaphysics. Now, if there is to be a new positive philosophy, this paradox must be solved, and this is possible, obviously, only on condition of a change in the philosophic method. In making this change there are two alternatives: either the reflective method must be retained and greatly modified and manipulated, or it must be abandoned altogether and the external world must be asserted from the side of its own special sense, which throughout this paper we have been trying to maintain is the sense of touch. Has philosophy ever attempted this? The tangible world we saw, forcibly asserts its influence and importance throughout the earliest stages of animal life, in the practical world of common sense, and in the domain of science. Now the question is, has it done so also in philosophy, or has it in this sphere been altogether neglected? Is there any evidence that there is any one system of philosophy whose characteristic method of procedure, whose characteristic type of thought we can identify with the type of touch?

We shall try to adduce evidence to show that what may be called the psychological foundation of the Scottish school of philosophy, Natural Realism, is the sense of touch; that the particular type of thought, or thought-temperament which is the underlying possibility of such a doctrine is the "touch type." Or to be more particular, what we shall try to prove is that the real external world which this school of philosophy so bravely defends, and tries so hard to express, is not a world known by some inexplicable divine intuitive act of consciousness as they thought, but the simple and hitherto unattended to, phenomena of the *special* sense of touch; and that the characteristic "immediate" type of knowledge by which they conceived this world to be known, can be identified with those processes which are peculiar to tactual perception.

The essential point to be noted in the doctrine of Natural Realism is that it is a reaction against the Lockian "theory of ideas." According to this theory of ideas all knowledge is mediate, we can only know things through their ideas. Now the school of Realism, noticing the sceptical outcome of this doctrine, reviews it, and finds that, though there is a great deal of truth in it, yet it is only a partial view. Realism says that "mediate" knowledge is not all; there is immediate knowledge; there is a certain kind of knowledge in which there is no *tertium quid*. Or again, Realism may be said to be a forcible return to perception. The Berkeleyan idealism reduced perception to the type of conception. Realism brings perception back to its original type and emphasizes it. The watch-word of the whole system is "immediate perception." And now that we have the doctrine as it were in a nut-shell, all we have to do is to find out what is really meant by "immediate perception"—what is the type of knowledge it expresses. In order to do this let us first see what sort of criticism the Scottish philosophers passed on the reflective method of idealism, and what method they proposed to put in its place.

The criticism they passed on the method of reflection was essentially psychological. They looked into the psychological basis of the method. And what do they find? That the whole system is built up on an analogy of visual processes. They analyze the language of philosophy and they find that it is made up almost wholly of visual terms.

Dugald Stuart says:

"Another observation too, which was formerly hinted at, is confirmed by the same historical review; that in the order of inquiry, the phenomena of vision had first engaged the attention of philosophers, and had suggested to them the greater part of their language, with respect to perception in general; and that in consequence of this circumstance, the common modes of expression on the subject, unphilosophical and fanciful at best, even when applied to the sense of seeing, are in the case of all the other senses obviously unintelligible and self-contradictory."

Dr. Thomas Reid gives the same criticism of the so called idealistic method:

"Of all analogies between the operations of body and those of the mind, there is none so strong and so obvious to all mankind as that which there is between painting or other plastic arts, and the power of conceiving objects in the mind. Hence, in all languages the words by which this power of the mind and its various modifications are expressed, are analogical and borrowed from those arts. We consider this power of the mind as a plastic power, by which we form to ourselves images of the objects of thought."

"In vain should we attempt to avoid this analogical language, for we have no other language upon the subject; yet it is dangerous and apt to

mislead. All analogical and figurative words have a double meaning, and if we are not very much upon our guard, we slide insensibly from the borrowed and figurative meaning into the primitive. We are prone to carry the parallel between the things compared farther than it will hold, and thus very naturally to fall into error."

The idealistic method of philosophy then, both Reid and Stuart recognize to be essentially of the visual type. All the current philosophical language is saturated with visual terms and becomes perfectly unintelligible when employed to express the phenomena of the other senses. Natural Realism has a great truth to express but it can find no language that will express it—the visual language of philosophy will grossly misrepresent it. This is the general criticism. But there is one central point in which this visual method shows its inadequacy to express the truth of Realism, and in this we can make the first step towards the psychological interpretation of what is meant by immediate perception. The place where idealism and realism part company once for all is in the distinction between the primary and secondary qualities of matter. Idealism makes no absolute distinction between them, and allows both alike to be expressed by its "ideas" or "visual images." The point upon which Realism insists is that there is something in the nature of the primary qualities that absolutely refuses to be expressed by the same method that expresses the nature of the secondary ones. This peculiarity is "the direct" and "distinct notion" which we get "of what they are in themselves." Dr. Reid expresses the distinction thus :

"Is there anything common to the primary which belongs not to the secondary ? And what is it ?

"I answer, that there appears to me to be a real foundation for the distinction ; and it is this—that our senses give us a direct and a distinct notion of the primary qualities and inform us *what they are in themselves*. But of the secondary qualities our senses give only a relative and obscure notion. They inform us only, that they are qualities that effect us in a certain manner—that is, produce in us a certain sensation ; but as to what they are in themselves, our senses leave us in the dark."—Reid's Collected Writings, edited by Hamilton. (seventh edition) Vol. I, p. 313.

This "direct notion of what things are in themselves" is what Reid means by immediate perception, as all who are acquainted with his philosophy will know ; and from the above passage we learn that it is the peculiar type of knowledge by which we know the primary qualities as distinct from the secondary. This kind of knowledge, he maintains, cannot be reduced to the mediate type ; it is a type which must be expressed after its own peculiar fashion. It can be seen from the following quotation from Reid that what is really meant here is tactual perception. Speaking of the difference between visible and tangible magnitude he says :

"Such differences in their properties led Bishop Berkeley to think that visible and tangible magnitude and figure are things totally different and dissimilar, and cannot belong to the same object.

"And upon this dissimilitude is grounded one of the strongest arguments by which his system is supported. For it may be said, if there be external objects which have a real extension and figure, it must be either tangible extension and figure, or visible, or both. The first appears absurd; nor was it ever maintained by any man that the same object has two kinds of extension and figure totally dissimilar. There is then only one of the two really in the object, and the other must be ideal. But no reason can be assigned why the perceptions of one sense should be real, while those of another are only ideal; and he who is persuaded that the objects of sight are ideas only, has equal reason to believe so of the objects of touch.

"This argument, however, loses all its force, if it be true, as was formerly hinted, that visible figure and extension are only a partial conception, and the tangible figure and extension a more complete conception of that figure and extension which is really in the object."—*Essays on the Intellectual Powers of Man*, Collected Writings, I, 325.

In this passage the psychological interpretation of Reid's conflict with Berkeley is made very clear. Both agree that the visual and the tangible worlds are incommensurable as such, yet both want to give the world a homogeneous expression. In doing this they part company; Berkeley takes the visual world and makes the tangible conform to its type; Reid prefers the tangible and makes all conform to its type.

But we can make a more special analysis of what Natural Realism means by the intuitive conception of external reality. Dr. Reid distinguishes carefully between what he calls his "conception" of hardness and the "sensation" which accompanies the touching of a body.

"Let a man press his hand against a hard body, and let him attend to the sensation he feels, excluding from his thought everything external, even the body that is the cause of his feeling. This abstraction indeed is difficult, and seems to have been little, if at all, practised. But it is not impossible, and it is evidently the only way to understand the nature of the sensation. A due attention to this sensation will satisfy him that it is no more like hardness in a body than the sensation of sound is like vibration in the sounding body.

"I know of no ideas but my conceptions; and my ideas of hardness in a body is the conception of such a cohesion of its parts as requires great force to displace them. I have both the conception and belief of this quality in the body, at the same time that I have the sensation of pain by pressing my hand against it. The sensation and perception are closely conjoined by my constitution, but I am sure they have no similitude; I know no reason why one should be called the idea of the other, which does not lead us to call every natural effect the idea of its cause."—Reid's Collected Writings, edited by Hamilton, Vol. I, p. 317.

He presses his hand against a hard body, he feels certain sensations in his hand, temperature feelings, muscular feelings, feelings of fatigue, feelings of one part pressing against another, all of which he recognizes as some affection of his

hand and which he is pleased to call by the name of "sensation." But none of these gives him the "conception" of hardness; what he means by hardness is something very different and foreign to all of them. Yet accompanying these "sensations" he gets this "conception" of hardness; he gets it at the same time that he gets the subjective feeling in his hand; he knows not how, he simply gets it. Now does not all this look very much as if that which Reid called "conception" of hardness was just the *special* sensation of touch? He did not know that there was such a thing as a special sense of touch distinct from those other feelings which appear as affections of the skin, and what is more likely than that he should christen the feeling which he got from it by such a name as "intuitive conception?" But all this will be made clearer and more conclusive by the following passage:

"There is, no doubt, a sensation by which we perceive a body to be hard or soft. This sensation of hardness may easily be had, by pressing one's hand against the table, and attending to the feeling that ensues, setting aside, as much as possible, all thought of the table and its qualities, or of any external thing. . . . .

"There are, indeed, some cases, wherein it is no difficult matter to attend to the sensation occasioned by the hardness of a body; for instance, when it is so violent as to occasion considerable pain: then nature calls upon us to attend to it, and then we acknowledge that it is a mere sensation, and can only be in a sentient being. If a man runs his head with violence against a pillar, I appeal to him whether the pain he feels resembles the hardness of the stone, or if he can conceive anything like what he feels to be in an inanimate piece of matter.

"The attention of the mind is here entirely turned towards the painful feeling; and, to speak in the common language of mankind, he feels nothing in the stone, but feels a violent pain in the head. It is quite otherwise when he leans his head gently against the pillar; for then he will tell you that he feels nothing in his head, but feels hardness in the stone. Hath he not a sensation in this case as well as in the other? Undoubtedly he hath; but it is a sensation which nature intended only as a sign of something in the stone; and, accordingly, he instantly fixes his attention upon the thing signified; and cannot without great difficulty, attend so much to the sensation as to be persuaded that there is any such thing distinct from the hardness it signifies.

"But, however difficult it may be to attend to this fugitive sensation, to stop its rapid progress, and to disjoin it from the external quality of hardness, in whose shadow it is apt immediately to hide itself; this is what a philosopher by pains and practice must attain, otherwise it will be impossible for him to reason justly on this subject, or even to understand what is here advanced. For the last appeal, in subjects of this nature, must be to what a man feels and perceives in his own mind.

"It is indeed strange that a sensation which we have every time we feel a body hard, and which, consequently, we can command as often and continue as long as we please, a sensation as distinct and as determinate as any other, should yet be so much unknown as never to have been made an object of thought and reflection, nor to have been honored with a name in any language; that philosophers, as well as the vulgar, should have entirely overlooked it, or confounded it with that quality of bodies which we call *hardness*, to which it hath not the least similitude. . . . .

"The firm cohesion of the parts of a body, is no more like that sensation by which I perceive it to be hard, than the vibration of a sonorous body is like the sound I hear: nor can I possibly perceive, by my reason, any connection between the one and the other. No man can give a reason, why the vibration of a body might not have given the sensation of smelling, and the effluvia of bodies affected our hearing, if it had so pleased our Maker. In like manner, no man can give a reason why the sensations of smell, or taste, or sound, might not have indicated hardness, as well as that sensation which, by our constitution, does indicate it. Indeed, no man can conceive any sensation to resemble any known quality of bodies. Nor can any man show, by any good argument, that all our sensations might not have been as they are, though no body, nor quality of body, had ever existed.

"Here, then, is a phenomenon of human nature, which comes to be resolved. Hardness of bodies is a thing that we conceive as distinctly, and believe as firmly, as anything in nature. We have no way of coming at this conception and belief, but by means of a certain sensation of touch, to which hardness hath not the least similitude; nor can we, by any rules of reasoning, infer the one from the other. The question is: How we come by this conception and belief?

"First, as to the conception: Shall we call it an idea of sensation, or of reflection? The last will not be affirmed; and as little can the first, unless we will call that an idea of sensation which hath no resemblance to any sensation. So that the origin of this idea of hardness, one of the most common and most distinct we have, is not to be found in all our systems of the mind: not even in those which have so copiously endeavoured to deduce all our notions from sensation and reflection.

"But, secondly, supposing we have got the conception of hardness, how came we by the belief of it? Is it self-evident from comparing the ideas, that such a sensation could not be felt, unless such a quality of bodies existed? No. Can it be proved by probable or certain arguments? No; it cannot. Have we got this belief, then, by tradition, by education, or by experience? No; it is not got in any of these ways. Shall we then throw off this belief as having no foundation in reason? Alas! it is not in our power; it triumphs over reason, and laughs at all the arguments of a philosopher. Even the author of the "*Treatise of Human Nature*," though he saw no reason for this belief, but many against it, could hardly conquer it in his speculative and solitary moments; at other times, he fairly yielded to it, and confesses that he found himself under a necessity to do so.

"What shall we say then of this conception, and this belief, which are so unaccountable and untractable? I see nothing left, but to conclude, that, by an original principle of our constitution, a certain sensation of touch both suggests to the mind the conception of hardness, and creates the belief of it."

"What hath been said of hardness, is so easily applicable, not only to its opposite, softness, but likewise to roughness and smoothness, to figure and motion, that we may be excused from making the application, which would only be a repetition of what hath been said. All these, by means of certain corresponding sensations of touch, are presented to the mind as real external qualities; the conception and the belief of them are invariably connected with the corresponding sensations, by an original principle of human nature."—*Inquiry into the Human Mind*, Collected Writings, Vol. I, p. 120.

In this passage there are noticeable two special points in which there is a most striking resemblance between Reid's "intuition of the primary qualities" and the special sense of contact. 1. In order to get the sensation of contact proper,

there must be a certain amount of pressure on the skin. If the pressure is very light we get the "tickle" sensation. On increasing the pressure within certain limits we get the sensation of contact proper—the feeling which is of the nature of the "hard kernel." On increasing the pressure still further we get the more subjective type of feelings, muscle-sense, pressure of the muscles against one another, tendon sensations and perhaps "innervation feelings," pain, etc. Now Reid, in this passage, is very careful to make plain that his "intuition" only accompanies that degree of pressure which is within the limits of the sense of contact. Can we desire any more conclusive circumstantial evidence that this indefinable "conception" or "intuition" is just the specific sense of touch? 2. The characteristic which most clearly distinguishes the sense of touch from all other senses, is that it is the final and ultimate appeal to reality. The reality which we get by all other senses has the characteristic of being *inferential*—we always can reason as to the real existence of what they inform us about—we can doubt its reality and often have reason to—but the reality of touch is ultimate; we can have no proof of it; it is its own proof, its reality is given immediately. The interest of touch is always practical, and never speculative. There is no separation of the sensation from the belief. How all this came about according to the principles of natural selection, we saw before. Now this is just the character of Reid's "intuition" of the real world. Reason or reflective thought may deny it, may ignore it, in its philosophical seclusion from active life, but in real life, in practical life, it laughs at reason. This "belief" type of knowledge, which was before shown to be the special character of the "touch" type, is the characteristic which distinguishes Natural Realism as a distinct system of philosophy; this can be seen from many such passages as the following:

"We know what rests on reason, but believe what rests on authority. But reason itself must at last rest on authority, for the original data of reason do not rest on reason, but are necessarily accepted by reason on the authority of what is beyond itself. These data are therefore, in rigid propriety, Beliefs or Trusts. Thus it is that in the last resort we must perforce philosophically admit that belief is the primary condition of reason, and not reason the ultimate ground of belief." "The ultimate facts of consciousness are given less in the form of cognitions than of beliefs. Consciousness in its last analysis—in other words, our primary experience—is a faith. We do not in propriety *know* that what we are compelled to receive as not-self is not a perception of self; we can only on reflection *believe* each to be the case *in reliance on the original necessity of so believers imposed on us by nature.*"—HAMILTON, *Discussions*, p. 86.

Sir William Hamilton agrees with the fundamental principle of the doctrine as laid down by Reid and Stuart. He re-

tains the doctrine of immediate perception but with some modification. The change which he makes, stated in a word, consists in narrowing down the amount of non-ego or external reality perceived, and the particular way in which he does this makes the evidence all the stronger that the "immediate perception" is in its ultimate analysis, the sense of contact. The tendency of Reid in his uncritical enthusiasm over his great truth, was to regard the immediate type of knowledge as extending over a very large area of thought, but Hamilton is more critical and makes an effort to find out its original meaning and to what particular sphere it belongs. To what extent do we have this intuitive perception of external reality, he asks, and what are the sole conditions on which it is possible? He discovers, in answer to this, that the object of perception, in so far as it is a quality of the extra-bodily world, is that which is in *contact* with the organ of sense. "An external object is only perceived inasmuch as it is in relation to our sense, and it is only in relation to our sense inasmuch as it is present to it." The only way any *real* external thing can affect us, is by actual contact. The only terms in which *reality* can express itself as such, are terms of contact. A few quotations will make this clear.

"We perceive through no sense aught external, but what is in immediate relation and in immediate *contact* with its organ; and that is true which Democritus of old asserted, that all our senses are only modifications of touch. Through the eye we perceive nothing but the rays of light in relation to, and in contact with the retina; what we add to this perception must not be taken into account."—*Metaphysics*, Lecture XXV.

"To say that we perceive the sun and moon is a false or elliptical expression. We perceive nothing but certain modifications of light in immediate relation to our organ of vision. It is not by perception, but by a process of reasoning, that we connect the objects of sense with existence beyond the sphere of immediate knowledge. It is enough that perception affords us the knowledge of the non-ego *at the point of sense*. To arrogate to it the power of immediately informing us of external things which are only the causes of the object we immediately perceive, is either positively erroneous or a confusion of language."—*Metaphysics*, Lecture, XXVII.

Is this not a strong point then, in favor of the position we are trying to support, that the most acute representative of the doctrine of Natural Realism, should find the only possibility of a direct knowledge of external reality, in the one sense of contact?

Very closely allied to the sense of contact is the muscle sense. We always find the most highly developed tactual appendages also the most mobile, and it is quite true that locomotor sensations play a great part as concomitants to the sense of touch in making up our knowledge of the external

world. But touch nevertheless gives us the *essential* feature of our world; it supplies the content, as was indicted before by the experiment of Landry. The muscle sense may help us to say that there is an external world, but it is the sense of contact that says what world it is. Considering this close alliance and co-partnership between the two senses, we might expect a tendency on the part of Natural Realism to explain the notion of external reality on the basis of the sense of resistance to effort. And this is just what we find. Hamilton in his later writings drifts towards this idea. Yet, in his case, it is quite evident from his doctrine as a whole, that what he really means is resistance *plus contact*. Just in so far as he would mean simple muscular resistance without the sense of contact he would not be a Natural Realist, as is well seen in the following criticism by Professor Veitch, a typical Natural Realist, on this very tendency of Hamilton's later thoughts :

"It seems doubtful whether the apprehension of resistance or of a resisting something as extra-organic in the locomotive effort is fitted or sufficient to give the intuition of extension or an extended thing. The intuition of resistance might be quite well satisfied by a force—a degree or intension of force—in correlation with the organism. Electricity would be sufficient to impede the locomotive effort; yet we should hardly regard this as adequate to give us the intuition of an extended object, though it might be apprehended as external. These considerations tend to show that the locomotive power has received somewhat exaggerated importance as a factor in our apprehension of extra-organic objects. The three sources of knowledge—Contact, Pressure, and Locomotion—seem to me to be required to go together, and yield a conjoint result, ere we can form the complex notion of body,—as external, extended, and resisting."—VEITCH, *Hamilton*, Blackwood's Philosophical Classics, 141, Glasgow 1888.

The external world for which the Scottish philosophers are contending, then, is not a world that can be inferred from muscular resistance; it may be known in connection with this resistance but is not derivable from it. This point is brought out even more emphatically in the criticism of Natural Realism proper on the doctrine of Inferential Realism as given by Dr. Thomas Brown. The pith of Brown's doctrine can be seen from the following quotation :

"To what, then, are we to ascribe the belief of external reality which now accompanies our sensations of touch? It appears to me to depend on the feeling of resistance, which, breaking in without any known cause of difference on an accustomed series of feelings, and combining with the notion of extension, and consequently of divisibility, previously acquired, furnishes the elements of that compound notion which we term the notion of matter. Extension and resistance—to combine these simple notions *in something which is not ourselves*, and to have the notion of matter, are precisely the same thing."—L. XXIV., p. 150.

The following is the criticism of Natural Realism as given by Professor Veitch :

"This is a singular and glaring specimen of *petitio principii*. Whence our belief in external or non-mental existence? Extension and resistance are "feelings," "notions," subjective states merely. These combined can but constitute a more complex mental state. This is not an external reality,—it is not the matter Brown is in search of. But he quietly adds, "to combine these simple notions in something which is not ourselves, and to have the notion of matter, are precisely the same thing." But when and how do we get this "something which is not ourselves," this "something" which is over and above our sensations? This is not explained; it is assumed. . . . . But Brown's inference of a cause of resistance in something that is not self, is wholly unwarranted on the premises and by the process here given. (1) It is supposed to be reached on the principle, assumed to be intuitive, of similar antecedents having similar consequents. When antecedents are similar, consequents are similar; true, but for all this there may be events which have no antecedents at all in the case, it will be in virtue, first of all, of the principle that every event or change in our experience has a cause—a cause of some sort. This principle or necessity is not involved in the principle, that where antecedents are similar, consequents are similar; on the contrary, this latter principle is founded on the other as one at least of its essential elements. (2) But if we carry out our inference on the principle of difference of antecedent from difference of consequent, the antecedent inferred will still necessarily be one within our experience. not a something wholly unknown to us, of which we cannot predict either affirmatively or negatively. I have the feeling of resistance; I know nothing more; I have no right to speak of "some object opposed to me." This is to introduce an object which is not a sensation. But why speak here of an antecedent at all? There is even no antecedent in time here. The feeling of resistance is not, *ex hypothesi*, preceded in my states of consciousness by anything I know, or any state of consciousness. It arises suddenly, unexpectedly, from nothing known to me that has gone before. I have no known antecedent to fall back upon; and as my whole knowledge or consciousness in the matter is limited to antecedents which are states of my own mind, I ought naturally to seek the antecedent among these, not in the wholly new notion of something opposed to me.—some object which is not myself,—an object which transcends alike my experience and my knowledge. If I do reach this notion, I certainly do not get it by the principle of the similarity of sequence between antecedents and consequents. And just as little can I reach it by the principle of causality. This principle might tell me there is a cause of the feeling of resistance; it could never tell me *what* that cause is, or give to me the new notion of a particular cause. . . . . Any form of cause—spiritual or material alike—satisfies the idea of cause. How then can I thus account for this belief in corporeal substance distinct from myself. Obviously, the whole process is a mere fallacy. And if we have this belief which Brown assumes, it never arose in the way he supposes it did. We have no alternative but to retrace our steps, and to admit with Hamilton that we have illegitimately rendered the immediate perception or intuition of the external object from the irresistible belief in it; that, in fact, we believe in an outward world in space because we know an outward world there, and believe that we know it."—VEITCH, *Hamilton*, Blackwoods Philosophical Classics, 168, Glasgow 1888.

Let us stop here with the consideration of the more particular points of evidence, and let us look at the whole matter from a general standpoint. From the main characteristics or general symptoms of the doctrine of Natural Realism, what is it that we find? Here is a peculiar doctrine of the perception of the external world—the statement of a peculiar type of perception. The essential feature of the world known by this kind of perception, is that it is not deducible or derivable from anything that we know; it is not derivable from the feeling of muscular movement, resistance to muscular movement, nor from any possible combination of any of the sensations which accompany it; it is known *directly* and in itself, its own nature is the only thing that can define it. Now of what are these the symptoms? Psychology only knows of one thing in psychic life which presents these same marks, and that is what it calls the “special sense.” The special phenomena of the sense of sight though scientifically *explained* by the notion of waves of ether, can never be deduced from such a notion, or known in any other way except by means of “seeing.” Does not this peculiar kind of perception of Natural Realism then, look very much like perception by some special sense? Supposing that we take for granted that it is so, is there any further evidence on the matter? Is there any evidence which goes towards defining what that special sense is? From the passages already quoted it is evident that the sphere to which this realistic perception originally belongs is the knowledge of the primary qualities of matter; that it originally and properly accompanies certain sensations of the skin; that the proper conditions on which it occurs, are identical with the conditions which by experiment have been found necessary to the specific sensation of contact; and lastly, that the essential feature in the content of this perception is identical with the content of the special sense of touch. Is it not likely then, that what the advocates of Natural Realism really meant by the immediate perception of reality was, though indeed they were far from being aware of the fact, nothing more or less than tactual perception? If we did not know that there was such a thing as the special sense of sight, and if all we knew in connection with visual perception as sensation were the muscular sensations of the eye, it is quite probable that we would have a whole system of philosophy equal to that of Natural Realism and full of magic categories, all built up for the purpose of explaining the simple peculiarity of visual phenomena. And from the considerations which have just been enumerated it is reasonable to suppose that on just such principles has the central principle of the philosophy of Natural Realism been established for the purpose of express-

ing the peculiar, specific nature of the special phenomena of touch.

The results may be summarized briefly as follows:—

1. There is a general distinction between reflective and practical thought, the characteristic of the latter being that it consists in a great complexity of reactions to the belief in an external reality.
2. The psychological foundation of this practical sphere of thought can be found in the sense of touch.
3. The conception of contact has great influence on scientific hypotheses.
4. Owing to the current method and language of philosophy the influence and importance of touch in this sphere is not so apparent and has for the most part been overlooked, but there is one system in the history of philosophy which has endeavored to assert its claims, viz: Natural Realism. What the Scottish philosophers Reid, Stuart, and Hamilton, were striving to express in their doctrine of "immediate perception" of external reality was really tactual perception.

Valuable suggestions can be drawn both for psychology and for philosophy. From the psychological side we see the pressing need of a thorough investigation into the dermal and locomotor senses. These undoubtedly, form the greater part of the basis of practical life, and yet, uninvestigated and without language in which to assert their importance, they are almost wholly overlooked in the current interpretations. The language of touch is at best very vague and general. Moreover it is not indigenous, but formed analogically from the terms of other senses. What it needs is a language of its own, and the way to this is obviously by the methods of experimental psychology and a study of the evolution of the senses. The variety of senses included under what is generally termed the tactuomotor sense must be separated by experiment, the special nature and function of each determined, and the primitive history of their relations to life and the other senses thoroughly investigated.

From the side of philosophy we can in the first place agree with the Scottish philosophers that the philosophical systems current at their time, systems founded on the Lockian theory of ideas, were one-sided; that they were constructed almost wholly out of analogies taken from visual phenomena and consequently unintelligible and self-contradictory when employed in the expression of truths received by means of other senses. Natural Realism had a great truth to impress upon the world, but owing to the corruption of philosophical method and language it failed to get a hearing. It has been eclipsed in the history of philosophy by other apparently more attractive systems, not owing to the fact that they had the balance of

truth on their side but that they had the balance of language.

But the above results, I think, suggest a further and more important question as to the method of philosophy as a whole. If the fundamental category of the Lockian school of philosophy, the "idea," is really, as Reid and Stuart suggested, the "visual image," and if the central category of the Scottish school, "intuition" or "immediate perception" of reality is tactual perception, are we not led from this at least to hope for the possibility of finding a similar psychological statement for the chief categories underlying all systems of philosophy? Already it is generally admitted among philosophical critics that very large portions of every system of philosophy have a psychological foundation in the character of the age, nation and individual, and is it not equally probable that there is a like psychological basis underlying the very heart of each system, even unto the most fundamental and apparently ultimate categories? May it not be that all the magic categories of philosophy which profess to be ultimate expressions of the absolute, are only poetic attempts to express special feelings of sense which for want of attention and proper analysis are not recognized as such? The categories which have been handed down through the history of philosophy, taken as they must have been, from a comparatively chaotic mass of sensations, the elements of which were unseparated and uncriticized, must at best be very vague in their meaning and extremely inadequate to a scientific expression of the principles of life and thought. If a necessary element in the aim of philosophy is to keep itself in constant touch with the poetic æther, then its present system of categories may serve its purpose best, but if it means to bear a truly scientific attitude towards the world, it must forthwith surrender them up for psychological criticism, and that done, have itself restated in new and more scientific terms, rebuilt on a fresh system of more tangible categories all gotten from a thorough-going scientific analysis of instinct and sensation.

In conclusion I desire to express my gratitude to President Hall for kind criticism of my work and inspiring suggestions during the preparation of this paper. I am also indebted to Dr. Scripture for reading over the paper and suggesting several corrections.